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Journal of the Society of Arts.

FRIDAY, JULY 13, 1866.

Announcements by the Council.

EXAMINATIONS, 1867.

The Programme of Examinations for next year is in preparation, and will shortly be ready for issue.

Proceedings of the Society.

MUSICAL EDUCATION COMMITTEE.

The Committee met on the 27th ult., Henry Cole, Esq., C.B., in the chair. The Committee agreed to the following as their

FIRST REPORT.

1. The Committee appointed to consider and report on the state of the Musical Education of the United Kingdom submit the evidence* they have taken, and have agreed to the following as their first Report.

2. The Committee have obtained full information of the constitution, present state, and working of the Royal Academy of Music; and have obtained evidence on the National College of Music, the London Academy of Music, and the London Vocal Academy. They have received a report on the Military School of Music, Kneller Hall. On the subject of Church Music the Committee have been in correspondence with the Deans and Chapters of the several Cathedral Churches. Through the Secretary of State for Foreign Affairs reports have been obtained of the regulations of the several Academies at—

Paris,	Leipsig,
Munich,	Milan,
Vienna,	Naples,
Prague,	Berlin.

The documents relating to these several Institutions are printed in the appendix.

The Secretary of the Society of Arts was despatched to Brussels and Liège in order to report on the Musical Institutions there. His report will be found in the printed evidence.

3. In respect of the Royal Academy of Music, Sir George Clerk, Bart., Chairman of the Committee of Management, and Mr. Lucas, Principal of the Academy, have given complete evidence.

The views of the musical profession have been stated by the following gentlemen, who have kindly responded to the invitation of the Committee, and have either appeared personally before the Committee or favoured them with written observations:—

Professor Sterndale Bennett.	Mr. C. Lucas.
Mr. Benedict.	Mr. G. A. Macfarren.
Mr. Costa.	Sir F. Gore Ouseley.
M. Garcia.	Mr. Ernst Pauer.
Mr. A. F. Godfrey.	Mr. Otto Goldschmidt.
Mr. J. Hullah.	Mr. Turlé.
Mr. Henry Leslie.	Dr. Wylde.

The Committee have also to acknowledge the valuable evidence and suggestions which they received from

The Right Hon. Sir George Clerk, also

Messrs. Capes,
Harry Chester,
H. F. Chorley,
Cole, C.B.,
P. Le Neve Foster, and
B. St. John B. Joule.

4. The wide cultivation and use of music in this country from the earliest period render it superfluous for the Committee to dwell on the importance and value of this ancient branch of the Fine Arts. The Committee have not considered it within their province to enter upon the subject of the various systems of teaching music. Their inquiries have rather been directed to ascertaining the principles and the nature of the administration by which the general musical education of the people of this country may be systematically conducted on a scale and with results at least equal to those of the Academies which flourish on the Continent of Europe.

5. To the Royal Academy of Music, which is established under a Royal Charter, and at present receives a small annual vote from Parliament, the Committee naturally turned their attention, as being the institution best calculated to serve as the basis for any enlarged National Institution for promoting musical education; and the Committee had the satisfaction of finding the utmost willingness on the part of the Royal Academy to adopt whatever course might be necessary to improve its organization and render it thoroughly efficient.

6. Looking to the past history of the Royal Academy of Music and to the support which foreign Musical Academies receive from their respective governments, the Committee consider that adequate Parliamentary funds, with ministerial responsibility for their expenditure, are essential to the establishment and maintenance of a National Academy of Music worthy of its object.

7. The Committee consider that a National Academy should afford gratuitous education to a limited number of persons having great musical gifts, who, after proper training at the public expense, would engage to devote their talents to the service of the public as professors of the art of music, and that the form in which Parliamentary assistance could be best afforded would be by scholarships, which should be held by candidates who, in open competition, had proved that they are endowed with the gift of musical ability.

8. The Committee are also of opinion that besides the training of Free Scholars, the Academy should be open to the public at large on the payment of adequate fees, which might be graduated according to the musical ability of the pupils and be auxiliary to the support of the Institution.

9. As soon as the Institution shall have obtained public confidence, it may be hoped that the Cathedrals and various other corporations will provide the means of sending from their respective localities to the Academy young persons of musical genius; and the Committee recommend that the Society of Arts should itself set the example of such endowments by establishing a limited number of scholarships.

10. The Committee consider that, before Parliament can be asked to increase its present vote to the Royal Academy of Music, the Academy should provide, through the voluntary aid of the public, permanent and suitable premises, possessing all requisite facilities for practice and study.

11. The Committee find that in 1854 the Royal Academy made an application to H.M. Commissioners for the Exhibition of 1851 for a site on the Kensington Gore Estate, and also for pecuniary assistance towards erecting a building, but that, although a Committee, presided over by the Prince Consort, was appointed by the Commission to consider the matter, no decision respecting it was then arrived at. The Committee venture to think that such an application might be repeated with advantage at the present time, when there

* This evidence, as well as the other documents referred to, have appeared from time to time in the *Journal*.

is a prospect of the Academy entering upon a more extended sphere of usefulness.

12. Convenient and ample premises for transacting the work of the Royal Academy are an urgent necessity; and probably three years must elapse before they can be built even after the funds are obtained. In the meantime the Academy, being obliged to vacate its present premises in Tenterden-street, is seeking to obtain temporary shelter elsewhere. During this transitional period the Committee consider that every effort should be made by the Academy to enlarge its basis of action and to establish an effective system of responsible administration. This can be secured only by the appointment of a director, of proved administrative ability, entrusted with full authority. When the public are satisfied with the promise of an efficient Academy, it may be expected that they will contribute towards the erection of suitable premises.

13. The Committee abstain from offering any further suggestions in detail until they find that the principles they have ventured to lay down are generally approved.

(Signed) GERALD FITSGERALD.

G. CLERK, Bart., *Chairman of the Committee of Management of the Royal Academy.*

J. E. HARRINGTON, Bart.

J. P. BOILEAU, Bart.

FRANCIS SANDFORD, Kt.

W. HAWES.

ROBERT K. BOWLEY.

E. A. BOWRING, C.B.

HARRY CHESTER.

HENRY COLE, C.B.

J. F. D. DONNELLY, Capt., R.E.

J. PUTTICK.

SAMUEL REDGRAVE.

HENRY SCOTT, Lieut.-Colonel, R.E.

Society of Arts, Adelphi, 27th June, 1866.

This Report has been ordered to be printed, and will be taken into consideration by the Council on an early day.

FINAL EXAMINATIONS, 1866.

In the list of Candidates, published in the *Journal* for the 8th June, for "146—Smith, James, 20, Bradford M.I., railway clerk—Arith. (1st)," read "146—Firth, James, 20, Bradford M.I., railway clerk—Arith. (1st)."

Proceedings of Institutions.

METROPOLITAN ASSOCIATION FOR PROMOTING THE EDUCATION OF ADULTS.—The third annual gathering was arranged to take place at the Crystal Palace, on the 18th June, but the weather on that day was so unfavourable that, although the attendance was large, the out-door amusements were necessarily postponed. The athletic sports were therefore held on Monday, the 25th June, the hour chosen being half-past six p.m., a convenient one for those expected to take part. The sports included a flat race of 100 yards, for persons of any age, and another of the same distance for youths under 16; flat races of 500 yards and one mile; a hurdle race of 200 yards with ten hurdles; running high jumps, and running long jumps; putting the stone (28 lbs.), and throwing the hammer (16 lbs.). There was also a special flat race of 300 yards for men over 40 years of age, a sack race, and a "consolation" hurdle race of 200 yards. Prizes varying in value from £1 and a medal to £5 were given. The sports went off very successfully, Sir Francis Sandford, the chairman, Mr. Benjamin Shaw, and other members of the committee being present. The prizes were afterwards distributed by Sir Francis Sandford.

ROCHDALE LYCEUM.—The last report states that though the number of members is smaller than in the year 1864, the state of the funds exhibits an improvement, caused by increased letting of their rooms. The amount owing by the Society is about £85, showing a reduction from last year of near £30. The committee desire to impress upon the members the necessity of soliciting their friends to join the Institution, as by so doing the debt, which is now comparatively small, would be liquidated, and the society placed upon a better basis. The treasurer's account shows that the receipts have amounted to £230 8s., and that there is a balance in hand of £16 15s. 11d.

EXAMINATION PAPERS, 1866.

The following are the Examination Papers set in the various subjects at the Society's Final Examinations, held in April last:—

(Continued from page 555).

GEOMETRY.

THREE HOURS ALLOWED.

To obtain a First-class Certificate, at least six problems and four propositions must be correctly done; to obtain a Second-class, at least four problems and eight propositions.

1. Draw a straight line perpendicular to a given straight line from a given point without it. Is Euclid's method always practically applicable?

2. If two triangles have two sides of the one equal to two sides of the other, each to each, but the angle contained by the two sides of one of them greater than the angle contained by the two sides equal to them of the other, the base of that which has the greater angle shall be greater than the base of the other.

3. Equal triangles, which are upon the same base and upon the same side of it, are between the same parallels.

4. If a straight line be bisected and produced to any point, the rectangle contained by the whole line thus produced, and the part of it produced together with the square of half the line bisected, is equal to the square of the straight line which is made up of the half and the part produced.

5. A segment of a circle being given, describe the circle of which it is a segment.

6. If from an external point two lines be drawn, one of which cuts a circle and the other touches it, the square of the touching line is equal to the rectangle under the segments of the cutting line.

7. Describe an isosceles triangle having each of the angles at the base double that of the vertical angle.

8. If the sides of two triangles about each of their angles be proportionals, the triangles shall be equiangular.

9. Equiangular parallelograms have to one another the ratio which is compounded of the ratios of their sides.

10. The rectangle contained by the diagonals of the quadrilateral figure inscribed in a circle, is equal to both the rectangles contained by its opposite sides.

11. Draw a straight line perpendicular to a given plane from a given point above it.

12. If a solid angle be contained by three plane angles, any two of them are greater than the third.

PROBLEMS.

1. Bisect a parallelogram by a straight line perpendicular to one of the sides.

2. The perimeter of an isosceles triangle is greater than that of an equal rectangle of the same altitude.

3. Find a square equal to the sum of two given rectilinear figures.

4. Given the base, the perpendicular, and sum of the sides of a triangle, construct it.

5. A ladder, AB, resting against a wall, CB, and on the horizontal ground, CA, begins to slide down. Show that the middle point of the ladder describes a circle round C.

6. If a circle roll within a circle of twice its diameter, any point in the first circle will trace out a diameter of the other.

7. Inscribe a circle in a given sector of a circle.

8. The opposite sides of any equiangular rectilinear figure must be parallel when the number of sides is even.

9. Find three points in the sides of a triangle, such that when they are joined the triangle shall be divided into four equal parts.

10. If A be the area of any triangle, prove that the area of a triangle whose angular points divide the sides of the former in the ratio of n to 1, is equal to $\frac{n^2 - n + 1}{(n + 1)^2} A$.

MENSURATION.

THREE HOURS ALLOWED.

1. Find the cost, at 8s. 10d. per yard, of the following pieces of oil-cloth: viz, 4 ft. 6 in. by 2 ft. 2 in.; 3 ft. 4 in. by 2 ft. 2 in.; 1 ft. 2 in. by 8 in.; and 1 ft. by 2 ft. 6 in.

2. The parallel sides of a trapezoid are 5 and 7 feet, and the diagonal, which is at right angles to these sides, is 7 feet; find the area and the other diagonal.

3. The area of a rectangular field is 2 acres 2 roods 32 perches, and its breadth is 300 links; find the number of hurdles, each two yards long, which will be required to enclose it.

4. Prove that a cord with its ends joined will enclose a greater area when in the form of a square than in the form of a triangle.

5. The area of a side of a cube is 21 feet 112 inches; find the solid content of the cube, and the length of its diagonal.

6. Give some method of arriving at the ratio which the circumference of a circle bears to its diameter.

7. The outer and inner circumference of a circular ring are 26 and 18 feet; find the area of the ring.

8. Find the radius of a segment-arch, having given the span and the rise.

9. A hollow cylinder, made of a material one-fifth of an inch thick, measures 22 inches round on the outside, and is 10 inches deep; find how many pints it will contain.

10. How many bullets, half an inch in diameter, may be made from a cwt. of lead the specific gravity of which is 11.2?

11. The solid content of the frustum of a pyramid is 259 feet 432 inches, the area of its two ends 48 and 75 feet; find its height.

12. A common garden pot is 21 inches round the top, 15 round the bottom, and 7 down the side; find the shape and size of a piece of paper which will surround it.

TRIGONOMETRY.

THREE HOURS ALLOWED.

1. If the unit of angle be an angle the subtending arc of which is twice the radius, what would be the numerical representation of 90° ?

2. If $\tan^2 x = \tan. (a-x), \tan. (a+x)$, then will $\sin. 2x = \sin. a \sec. \frac{\pi}{4}$

3. Find x from the equation—

$$1 + \cos. (x + a) = \cos.^2 (2x - a) + \cos.^2 (x - 2a)$$

4. If versed $\sin. A = \frac{1}{13}$, find the other trigonometrical ratios.

5. Find the 540th root of .00007, having given—
log. 7 = .8450980; log. 9.824394 = .9923057

6. Express the area of a quadrilateral figure in terms of its diagonals and their inclination.

7. Prove that—

$$\tan.^{-1} a + \tan.^{-1} b = \tan.^{-1} \frac{a+b}{1-ab}$$

and thence deduce a rapidly converging series for the calculation of π .

8. If C be an angle of a triangle, of which the sides are a, b, c , prove that—

$$c = (a-b) \cos. \frac{C}{2} \sqrt{1 + \left(\frac{a+b}{a-b} \tan. \frac{1}{2} C\right)^2}$$

9. If $2S = a + b + c$, show that the area of a triangle

$$= \sqrt{S(S-a)(S-b)(S-c)}$$

and that it is rational, if $a = xy(u^2 + x^2): b = ux(x^2 + y^2): c = (yu + xz)(yz - ux)$.

10. A hexagon is inscribed in a circle radius r , and the alternate angles are joined, the joining lines forming another hexagon. Prove that the area of this last hexagon is $\frac{\sqrt{3}}{2} r^2$

11. If O be the centre of the circle inscribed in the triangle ABC ; $\angle AOB = \alpha: \angle AOC = \beta: \angle BOC = \gamma$; then

$$4 \sin. \alpha \sin. \beta \sin. \gamma = \sin. A + \sin. B + \sin. C$$

12. If $2 \cos. A = x + \frac{1}{x}$, prove, without assuming De Moivre's theorem, that—

$$2 \cos. 4A = x^4 + \frac{1}{x^4}$$

13. Given $a = 85^\circ 63' \angle C = 48^\circ 24'$

$b = 78^\circ 21'$ find A and B

log. 1.6384 = .2144199 L. cot. $24^\circ 12' = 0.3473497$

log. 7.42 = .8704039 L. tan. $45^\circ 45' = 9.0030066$

Diff. for $1' = 1265.5$

14. Define the polar angle of a spherical triangle, and prove that its sides and angles are the supplements of the angles and sides of the primitive triangle.

15. Assuming the relation between the three sides and an angle of a spherical triangle, deduce the relation between the three angles and one side.

16. Investigate the formula—

$$\tan. \frac{1}{2} (A-B) = \frac{\sin. \frac{1}{2} (a-b)}{\sin. \frac{1}{2} (a+b)} \cot. \frac{1}{2} C$$

17. Hence prove that—

$$\sin. \frac{1}{2} (A-B) \sin. \frac{1}{2} c = \sin. \frac{1}{2} (a-b) \cos. \frac{1}{2} C$$

(To be continued.)

REPORT ON THE MILITARY SCHOOL OF MUSIC, KNELLER HALL.

I.—ORIGIN.

In the British army (which is peculiar in this respect) the cost of maintaining the regimental bands falls upon the officers. In the infantry, a sergeant, a corporal, and nineteen privates,—and in the cavalry, a sergeant, a corporal, and fourteen privates,—are taken from the effective strength of each regiment to form the band. The public provide only the ordinary regimental pay, the rest of the pay, and the entire salary of the bandmaster, if a civilian, together with the cost of music and musical instruments, are provided out of the "Band Fund," which is raised by "stoppages" from the officers on first appointment and promotion, and by annual subscriptions. The ordinary band subscription is thirty days' pay (according to rank) on appointment; on promotion the difference between the pay of the former and the present rank for a like period, and twelve days' pay per annum.

The band fund of each regiment is managed by a committee of the officers. In discharging the duty thus imposed upon them, the following difficulties were experienced:—

1. Owing to the scarcity of trained performers, and the superior remuneration to be obtained by them out of the army, there was always a deficient supply of suitable can-

didates for the military bands, which had consequently to be recruited from such materials as were ready to hand in each regiment. The men selected were generally destitute of musical knowledge and skill; they had to be taught everything, and they depended to a large extent for their instruction upon the band sergeant and the older bandmen. Under these circumstances, any high degree of efficiency was impossible, and such efficiency as could be attained was constantly liable to interruption from casualties, owing to the inadequacy of the number of regimental musicians sanctioned by authority.

2. It was still more difficult to retain the men after they had acquired some skill. They then naturally endeavoured to carry their talents to a better market, and there was nothing to restrain their freedom of action in this respect, whenever, by saving money enough, they found themselves in a position to purchase their discharge. This inconvenience became aggravated by the introduction of the short Enlistment Act.

3. Moreover, the bandmaster himself not being attached, as an enlisted soldier, to the regiment, could transfer his services from one regiment to another, and could refuse to accompany a regiment when ordered on foreign service. He held office under an engagement terminable by a short notice, and the officers had no hold upon him except the inducement of a higher rate of pay than he could obtain elsewhere.

4. The bandmasters being thus, with few exceptions, civilians, the large salaries they received had, owing to the comparative absence of competition, a constant tendency to increase, and little or nothing was left in the band fund with which to encourage talent and application on the part of the bandmen.

5. The bandmaster, on changing from one regiment to another, not unfrequently upset the arrangements of his predecessors, both as to instruments and music, thereby putting the officers to fresh expense, and throwing the bandmen back in their practice.

6. The variety of methods and instruments adopted by different bandmasters, combined with the want of a uniform pitch in the instruments, rendered it impossible for several bands to play together.

7. The civilian bandmasters, though they might be good conductors, were not generally qualified by any special training for the far more important work of teaching the bandmen, and having no military rank, they were neither amenable to, nor capable of enforcing, military discipline.

It was with a view of removing the difficulties above detailed, and of ensuring an adequate supply both of properly trained bandmasters and musicians for the army, that in the year 1856 the idea of establishing a military school of music was entertained by the present Commander-in-Chief, the Duke of Cambridge, and it having been ascertained that the proposal met the approval of the regimental officers, his Royal Highness, in concert with the Secretary of State for War, took measures for carrying it into practical operation.

The Government establishment for the training of schoolmasters at Kneller Hall, Whitton, near Hounslow, had been broken up by the Committee of Council on Education in 1855, and the building had not yet been applied to any other purpose. As it appeared to be in most respects adapted for receiving the proposed school, application was made to the Lords of the Treasury for its transfer to the War Department, and the transfer having been sanctioned, and the necessary appointments of professors made, a circular was issued announcing the establishment of the school, calling upon commanding officers to send men and boys to be trained as musicians for their several regiments, and giving an estimate of the amount of subscription that would be required towards its support. The school was opened for the reception of pupils on the 3rd March, 1857.

II.—ORGANIZATION.

The institution, as regards its organization, must be

viewed under two separate aspects, (1) as a military barrack, (2) as a school of music.

1. As a military barrack it is under the direction of the Secretary of State for War, and is subject to the same regulations as any other barrack.

2. As a school of music, Kneller Hall is conducted under the direction of the Commander-in-Chief, from whom emanate the regulations connected with the admission of pupils, and the course of study. A military officer is appointed to command the detachments under instruction, and he, in concert with the professors, judges of the musical capabilities and acquirements of the pupils, and makes recommendations accordingly to the officers sending them. The musical staff is composed of nine permanent professors, four occasional professors, and a varying number of special assistants, who are selected from the first-class students. The professors are all civilians.

There is also a schoolmaster (Mr. Cole) for the instruction of the students in general knowledge, who takes each of the classes during one hour daily, and religious instruction is given by a military chaplain, under the same regulations as in other army schools.

The sick of this detachment are sent to the hospital at Hounslow Barracks, and the surgeon of the regiment at that station visits the institution weekly.

The following are the names of the professors at present engaged, and of their special assistants, with the number of lessons given by them per week, and the distribution of their duties:—

Professors and No. of hours per week.	Special Assistants.	Duties of Professors.	
1. Permanent :—			
Mr. Mandel (40)	Scott	General theory of music, instrumentation of mili- tary bands. Clarinet. " " " " Bassoon. Flute. Trumpet and tenor brass instruments. French horn. Base brass instruments.	
„ Lazarus (13)	„		
„ Martin (28)	Kennedy		
„ Park (13)	Moran		
„ Snelling (13)	„		
„ Hartmann (13)	Hutchinson		
„ Zeiss (28)	Laye	Trumpet and tenor brass instruments. French horn. Base brass instruments.	
„ Mann (28)	Traise		
„ Mann (28)	Mooney		
„ Fullivan (28)	Davis	Bass brass instruments. Oboe. Trombone. Euphonium. " " " "	
2. Occasional :—			
Mr. Barrett	Miller		
„ Hawkes	„		
„ Hughes	Wheatley		
„ Phasey	„		

In addition to these paid instructors, the rest of the pupils in the first class are required to take part in the instruction, with the double object of affording them practice as teachers, and of gaining increased teaching power for the elementary classes, which have to be drilled in the merest rudiments.

III.—INSTRUCTION.

The following is a list (classed according to register) of the instruments taught at Kneller Hall:—

SOPRANO.—Piccolo, flute, oboe, E♭ and B♭ clarionets, cornet, saxophone, trumpet.

ALTO.—E♭ alt clarionet, althorn, trumpet.

TENOR.—French horn, tenor trombone, saxophone.

BASS.—Bassoon, B♭ bass-clarionet, saxophone, bass-trombone, euphonium, bombardon.

The students are divided into four classes—

1st (Highest) Class, chiefly theoretical instruction.

2nd Class, practical and theoretical.

3rd „ elementary and practical.

4th „ elementary.

The theoretical instruction is given to each class entire—slight differences of progress are here rather an advantage than a hindrance. For the practical instruction, the classes have to be sub-divided, according to the instruments to be learnt. The students in each sub-division are taught, as far as possible, in groups of two or more, but the great diversity of skill and proficiency existing amongst them, renders much individual tuition necessary.

The hours of study are—Mornings, from 8.45 till 12.30.

Afternoons, from 1.45 till 5 (in winter 4). Thus seven (in winter six) hours a day are devoted to obligatory study, during which time the students are receiving direct instruction, taking part in rehearsals or performances, or practising their respective instruments, under the supervision of a sergeant capable of affording them guidance. Practically, however, this period is very considerably increased, for the desire to make progress leads the students to engage in voluntary practice out of school time; so much so, that it has been found necessary, both for their own health, and for the comfort of the other inmates of the Hall, to prohibit all practice after a certain hour (6.45) every evening. Saturday is a half holiday.

The course of study generally occupies two years.

The higher course of study (for students who are in training for bandmasters) comprises, besides practical instruction in playing and teaching the instruments composing the band, some general acquaintance with the theory of harmony, counterpoint, and instrumentation. The aim in the theoretical instruction of these students is, not so much to make them composers, as to enable them to arrange or "score" music for the instruments of a military band. This they practice regularly, taking their scores to the theoretical professor for revision at certain hours appointed for that purpose, and in the reports furnished to his Royal Highness the Commander-in-Chief, long lists are given of music arranged or composed by them.

They also receive practical training in the duties of a conductor, by actually conducting at the rehearsals and public performances of the Hall band. One of these performances takes place every Friday afternoon, when a considerable assemblage of visitors is usually attracted; besides which, there are, in winter, occasional evening concerts. In addition to ordinary military music, classical pieces of concert and chamber music, specially arranged for wind instruments by the theoretical professor, are performed.

Although the students may never be called upon to play or conduct such music in their regiments, it is considered desirable to form their taste upon the highest models of the art.

The members of this class are generally bandmen of some service and experience in their vocation, some of them band sergeants.

The Rev. Hugh Huleatt, 1st class chaplain, performs divine service to the detachment on Sundays, in the Hall Chapel. The service is choral, the boys and men who possess the best voices being selected to form the choir.

Besides the above mentioned instruction, the advantage of cheap admissions to the operas, and principal concerts of the metropolis, is occasionally obtained, partly through the liberality of the managers, and partly at the expense of the institution, to such of the advanced students as are recommended for diligence by the professors. As many as 900 of these cheap admissions have been enjoyed by them in the course of one year. On these occasions, the directors of the South-Western Railway Company have, with similar liberality, greatly reduced their fares in favour of the students. Independently of admissions at low prices, many students obtain leave to attend the operas entirely at their own expense. The opportunity of hearing good music is not one of the least advantages gained by the pupils of Kneller Hall. Situated as it is within easy distance of the metropolis, it affords them the best means of forming their taste, and must give a fresh impulse to their studies. It is highly creditable to the moral discipline of the institution that no instance has yet arisen in which a student has abused this privilege.

IV.—PUPILS.

The pupils are selected from the various regiments (being often enlisted into them for the purpose), and are sent to Kneller Hall as vacancies occur.

Supplies of boys to be trained for the bands are obtained by the regimental officers from the Royal Military Asy-

lum, Chelsea, the Royal Hibernian Military School, Dublin, and the large Metropolitan Poor-law Schools. Instruction in military music has been introduced into these last mentioned institutions on the recommendation of her Majesty's inspector, Mr. Tufnell, as part of the industrial training, in order to prepare the more musical among the pupils for earning a livelihood as musicians in the bands of the army and navy.

Kneller Hall, through one of the reports of the commandant, has been the means of making known to the Band Committees this method of obtaining young bandmen without employing expensive agency, or paying a premium to any person for them. The number supplied by the two Government schools above named is, however, quite inadequate to the wants of the service. It is recommended that lads should not be sent to Kneller Hall before the age of fifteen.

Each candidate proposed for admission must be examined by the surgeon of his regiment, and certified by him to be in perfect health, and physically fit for instruction as bandsman, presenting no indication of any disease likely to be aggravated by playing on a wind instrument.

During the first few months after admission, the pupils are on probation only, and those who are manifestly disqualified for the pursuit, are sent back to their regiments. Whether those who remain shall be trained as bandmasters or bandmen depends solely on their commanding officers, and in the latter case the instrument each shall be taught is determined partly by the wishes of commanding officers, and partly by the opinion of the professors as to the capabilities of their pupils. Each student, on leaving, receives a certificate of his qualifications from each of the professors under whom he has studied. Thus a student who has passed successfully through the whole course of instruction, and is qualified to act as bandmaster, accumulates testimony to his qualifications from a number of independent and competent judges. These reliable guarantees of his professional ability are calculated—not only to ensure his attainment of the position which has been the object of his training and his hopes, but—to furnish the officers with evidence to which they can appeal in justification of that preference which they naturally wish to give to a duly qualified military bandmaster, trained at their own expense, over a civilian who will cost them more.

V.—ADVANTAGES SECURED TO BANDMASTERS WHO HAVE PASSED THROUGH KNELLER HALL.

A military bandmaster is now sanctioned by the Government for every regiment and battalion throughout the service, provided there is one available who has been trained and qualified for the appointment at Kneller Hall, and bandmasters so trained enjoy the pay and position of a 1st class staff-sergeant; they receive a salary of £100 a year from the Regimental Band Fund, in addition to their regimental pay. They rank with the schoolmaster, next to the regimental sergeant-major, according to date of appointment, and receive a higher rate of pension in accordance with their rank as 1st class staff-sergeant.

When in garrison, or brigaded, they take precedence over civilians, and when bands are playing together, they lead according to seniority of appointment.

When a soldier is sent to Kneller Hall to be trained for bandmaster, he is allowed to remain there until he has proved his fitness for the position or otherwise.

In the former case, he returns to his own corps in that capacity if required; but, if not, he is transferred to another regiment, where his services may be made available.

Military bandmasters, holding the rank of first-class staff sergeants, cannot serve in a subordinate position under another bandmaster, or in the inferior capacity of band sergeant.

If, however, a man proves himself to be incompetent for the situation, he returns to his regiment.

No system of rewards or honorary distinctions for

bandsmen has hitherto been established, but it is felt that some such system is required in order to promote the efficiency of the bands, especially as the soldiers, by entering them, lose the ordinary chances of promotion.

Some commanding officers have adopted a plan for rewarding merit among the bandsmen from the regimental band fund, and this they can now better afford to do since the bandmaster's salary is no longer so severe a tax upon their resources, and also since the introduction of the new system for reducing the price of band instruments to the army.

VI.—FINANCE.

The expenses connected with Kneller Hall as a military barrack are defrayed by the government. They include the original and incidental expenses of the building, and its furniture, the cost of clothing the men, the pay of the commandant (the present one is on half-pay), chaplain, surgeon, normal schoolmaster, and students (for they continue in receipt of their regimental pay). All the articles of food which the students require, beyond the daily rations, are purchased by themselves. They mess together, the soldiers forming one mess, the non-commissioned officers another, as in ordinary barracks, except that, in accordance with the educational character of the establishment, more than ordinary regard is had to their comfort in the arrangements made for their meals. The pay of the students is drawn from the paymaster of the London district by means of pay lists furnished to him by the officer commanding, who disburses the same, through his pay-serjeant, to the troops daily.

The expenses connected with Kneller Hall, as a school of music, are defrayed by the regimental officers. An original subscription of £5 was paid, by each regiment, to provide the requisite supply of musical instruments, the cost of which was between £500 and £600, and £8 is subscribed annually for the current expenses. These include the salaries of the professors, amounting in the aggregate to about £1,100 per annum, charges for copying and arranging music, replacement and repairs of instruments, stationery, postage, and other incidental expenses. The commandant has no salary, and he receives no remuneration for his services except the use of the apartments in which he actually resides. By a rigid economy in the administration of the funds, the expenditure has been kept within the original estimate, upon which the band committees were induced to cooperate with the authorities in establishing the school.

The accounts are periodically audited by official auditors.

VII.—NUMBER OF PUPILS ADMITTED AND RESULTS OBTAINED.

The health, conduct, and progress of the students have been remarkably good.

The subjoined table is compiled from the reports presented to the Commander-in-Chief, for the several periods, by the commandant.

From this summary it appears that the average number of students annually admitted is 74, the average number in attendance, 148; the average number annually returning to their regiments, who have completed their two years' course of musical training, 37 (or 50 per cent.), of whom 9 have been qualified for the position of bandmaster.

It will also be seen that the institution has had to contend against a serious difficulty, arising from the large proportion (73 per cent.) of students who have had little or no previous training. The commandant has, in several of his reports, mentioned this difficulty, and pointed out the necessity of making a good choice of the materials out of which, in the short time for which the pupils can be spared from their regiments, musicians are to be produced.

As regards the ability, conduct, and attention to duty of the men, after their return to their regiments, the commanding officers have invariably reported in terms of high approval. A practical proof of the high estimation in which Kneller Hall bandmasters are held by com-

Period.	Admitted.	Of whom		Left the School.						
		Knew little or nothing of music.	Practical musicians.	As bandmasters.	As bandmen.	Disqualified. For misconduct or idleness.	Deserted.	Died.	Special.	Total.
From 3rd March, 1857, to 31st December, 1858 ...	147	114	33	5	29	13	8	3	1	59
From 31st December, 1858, to 31st December, 1859 ...	79	71	8	4	41	5	4	1	...	55
From 31st December, 1859, to 31st December, 1860 ...	59	37	22	9	29	1	9	1	...	49
From 31st December, 1860, to 31st March, 1862 ...	83	61	22	7	38	9	5	1	2	63
From 31st March, 1862, to 31st March, 1863 ...	79	52	27	11	59	4	...	3	1	78
From 31st March, 1863, to 31st December, 1864 ...	145	94	51	27	75	6	7	3	5	130
Totals.....	592	429	163	63	271	38	33	12	8	434
Remaining under instruction										158
Total (agreeing with column 1).....										592

manding officers, is afforded by the fact, that when by death, or other casualty, a regiment has been deprived of the services of one of them, application has nearly always been made for another to replace him.

VIII.—COLLATERAL RESULTS OBTAINED.

In connection with Kneller Hall, a system for reducing the cost of band instruments has been introduced with the sanction of the Commander-in-Chief. These instruments are now supplied to the officers upon requisitions forwarded to the Horse Guards, and executed through the medium of Kneller Hall, instead of being obtained as formerly direct from the dealers, at a price enhanced in proportion to the premium which it was usual to allow to the civilian bandmasters.

Arrangements have been made with certain makers, in pursuance of which a discount of 25 per cent. is allowed to band committees purchasing through this channel.

The plan appears to have worked very successfully, as most of the regiments in the service have already benefited thereby. The instruments supplied, whether of foreign or British manufacture, are of the best description, and have been with scarcely an exception, highly approved of by the band committees.

To enable the bands of all corps throughout the army to play in concert, the Commander-in-Chief has ordered that the instruments of the whole shall be one uniform pitch, and that used at the ancient philharmonic concerts has been selected as the standard, or regulation pitch of the army. Each regiment has been supplied with a tuning fork of the proper pitch, at the cost of the fund of the Military School of Music.

This pitch gives 433 vibrations per second for the note A, and, as compared with the existing concert pitch in England ($A = 455$) is a semitone lower. In was in use in the Philharmonic Society, under Sir George Smart, from 1812 to 1842, was settled in the first instance by practical musicians, and was shown by long experience to be a good pitch for instrumental music. It is nearly identical with the pitch ($A = 435$) which has been adopted by the French Government, on the report of the commission appointed in 1859 to inquire into the subject, and is practically but little different from the theoretical or scientific pitch ($A = 426\frac{2}{3}$).

A return to this pitch has long been felt to be desirable as regards wind instruments, both for improving their tone and facilitating performance upon them. No difficulty

has been experienced in effecting this change in the instruments of the army.

IX.—CONCLUSION.

The objects contemplated in the foundation of the Military School of Music have been successfully attained.

1. There is now a constant supply of trained performers for the regimental bands, though it is still inadequate to the wants of the service.

2. These bandsmen, having received a good professional education, through the liberality of the Government and their commanding officers, are bound to serve in the army by a moral obligation, arising from the gratitude which they naturally feel towards their benefactors, and from the contract implied in their acceptance of the benefit. They have also a new object of ambition in the chance of future promotion to the post of bandmaster, as a successful musician trained at Kneller Hall, usually leaves it with the hope of returning some day to qualify himself for the higher position. It was at first supposed by some persons that the superior education given to bandsmen, through the agency of Kneller Hall, would have the effect of raising them above their work, and would thus increase, instead of diminishing, the inducements to leave the service. But the result has proved the contrary; a much smaller proportion of Kneller Hall bandsmen, than of others, have obtained their discharge, the per-centage in the latter case being about ten times as great as in the former; and it will be found that a large majority of those who have rejoined their regiments as efficient musicians, have since become non-commissioned officers.

3. There is a greater degree of permanency about the engagement of the bandmaster, and he feels a greater interest in the success of the band because he is a member of the regiment, and shares in its *esprit de corps*.

4. There is also a constant supply of bandmasters, who, on account of the education bestowed on them, and the fact of their being soldiers, may be obtained at a much less cost to the officers than the civilians who were employed heretofore.

5. The arrangement of the bands is less liable than formerly to be upset on a change of bandmasters, because the new bandmasters have all been educated in the same school, and on the same principles.

6. The bandsmen having, in like manner, been trained according to one method, and uniformity of pitch having in the meantime been established, the bands of different regiments can now perform in concert.

7. The new bandmasters have all received practical training in teaching, as part of their professional education, and, holding a recognised and well-defined rank in their regiments, they are better qualified than civilians to maintain good order and discipline among the soldiers placed under their charge, while they are also amenable to discipline themselves.

It only remains to be hoped that the time may come when the officers of the army shall be relieved from the tax, now imposed upon them, of maintaining the regimental bands at their own expense,—and when, as in all other states, the military music of the country shall be admitted as a charge on the national revenue, quite as legitimate as the cost of providing the arms and equipments of the soldier.

PARIS UNIVERSAL EXHIBITION OF 1867.

WEIGHTS, MEASURES, AND COINS.

On the suggestion of the Metric Committee of the British Association for the Advancement of Science, and of the Council of the International Decimal Association, the Imperial Commission for the Paris Universal Exhibition have resolved to have a special exhibition of the measures, weights, and coins of all countries, and to hold conferences at the same time, with a view to the establishment of one common system throughout the world. The two scientific bodies deputed Prof. Leone Levi to proceed to Paris, to meet M. Le Play, the Commissaire-

General, and after a conference with the commissioners of different countries, called for the purpose, the Minister of State issued the following ordinance on the subject:—

The Imperial Commission, taking into consideration the ordinance of 20th September, 1865, which establishes a Scientific Commission, states:—

The Scientific Commission has for its object to concur in extending the use of useful discoveries, and promote reforms of international importance, such as the adoption of the same weights and measures, common scientific units, &c. Taking into consideration also the propositions of two scientific societies in England,* propositions which include, first, the project of an international exhibition of measures, weights, and coins; secondly, the project of a conference, to take place in 1867, for the adoption and extension of a uniform system of measures; and considering the adhesion given to the above propositions by a conference held on the 2nd and 14th May, 1866, to consult as to the means for resuming the labours of the special commission formed at the Universal Exhibition of 1855, has decreed as follows:—

Art. 1.—A special place is appropriated in the vestibule of the Palace of the Champ de Mars, to an international exhibition of measures, weights, and coins of all countries.

Art. 2.—A special committee on measures, weights, and coins is established in the Scientific Commission to preside over the formation of this exhibition.

Art. 3.—The committee is besides called upon to use the most efficient means for taking advantage of the universal gathering of 1857, for the adoption and extension of a uniform system of measures, weights, and coins.

Art. 4.—To attain this object, the committee will place themselves in correspondence with the persons who have already taken part in the conferences of 1855 and 1866, and the principal persons of all countries whose assistance may be desirable.

The following are nominated members of this committee:—MM. Baudrillard, Member of the Institute, Professor at the Conservatoire des Arts et Métiers; Leone Levi, Professor of Commercial Law at King's College, London, Doctor of Political Economy, and delegate to the two above-mentioned scientific societies; Mathieu, Member of the Institute and of the Bureau des Longitudes; Peligot, Member of the Institute, Professor at the Imperial Conservatoire des Arts et Métiers, and Verifier of the Assays at the Mint.

Art. 5.—Other members of the same committee will afterwards be nominated—persons designated by the foreign commissioners of the states which will contribute to the special exhibition of measures, weights, and coins.

Art. 6.—The Conseiller d'Etat Commissaire-Général is charged with the execution of the present ordinance.

THE DEMOLITIONS AND EMBELLISHMENTS OF PARIS.

Antiquarians who desire to have a look at the last remnants of some of the most celebrated and least savory quarters of Paris must pay an early visit. The clearances for the new hospital of the Hôtel Dieu are sweeping away the rues d'Arcole, Constantine, de la Cité, the quai Napoleon, and the celebrated but wretched street the Rue des Marmousets. The pick-axe has already made its way through the rues Boucher, Etienne, Saint Germain l'Auxerrois, and a number of wretched alleys, for the course of the new street which is to lead direct from the Pont Neuf to the great central market. A great portion of the streets bordering on the Halles,

* Metric Committee of the British Association for the Advancement of Science; International Association for obtaining one uniform Decimal System of Measures, Weights, and Coins.

with the heavy pillars of the old colonnade, the sites of the birthplace of Molière and of the murder of Henry IV., the remnants of the old monastery and cemetery of the Innocents, are giving place to the new buildings which will complete the great market and connect it with the great circular building in which the corn market is held.

The repairs of the church of Notre Dame are nearly completed. All the side chapels are decorated and furnished with stone altars and statues of the saints to whom they are dedicated. In each are placed a crucifix, bronze and gilt candelabra in the style of the fourteenth century, and other emblems and ornaments. The great doors of the northern porch are just completed. In the centre of the parvis, or place in front of the church, is to be erected an ornamental column to replace that which formerly stood there, and from which the distances on the whole of the great roads throughout the country are measured.

On the south side of the river another great street, to be called the Rue de Solférino, is about to be pierced, and the new Boulevard Saint Germain is to be continued to the Palais Bourbon, in which is the chamber of the Corps Legislatif. These alterations will destroy a large number of celebrated mansions—the hôtel of the family of de Noailles, a fine old house with a noble terrace looking towards the Seine and facing the Louvre; a part of the hôtel of the Duc de Broglie, in the Rue de l'Université; and also that occupied at present by the Pope's Nuncio, as well as the whole or a portion of the residences of the families of La Ferté, de Forbin, and de Luynes; the proprietor of the last named, the Duc de Luynes, having had his garden taken for the streets in question, has put up his hôtel for sale. On the site of the building now occupied by the Chancellor of the Legion of Honour, it is proposed to erect a palace for the President of the Conseil d'Etat, which will occupy the angle formed by the new Rue de Solférino with the quay.

The London system of erecting places of refuge for pedestrians at the intersections of wide roads and streets is being carried out in various parts of Paris, where such means of safety had become absolutely necessary from the width of the places and the growing increase in the traffic. Many of these refuges are already completed; they consist uniformly of a piece of circular pavement, having in the centre an elegant candelabrum of large size, consisting of a beautiful casting in Florentine bronze, the stem being decorated with ornaments in bas-relief, and supporting five gas lights in elegant oval semi-opaque lanterns, four in a circle and one above; the candelabra stand on circular plinths of the stone of the Jura, between four and five feet in height, ornamented by machinery with bold mouldings and polished. In one place, where occurs the junction of the Boulevards Malesherbes and Haussmann with three streets, there are three of these useful refuges with their beautiful candelabra.

In connection with this subject may be mentioned an undertaking of the Prefect of the Seine, commenced some years since, namely, a collection of all the documents connected with the administration and public works of the city. One of the chief objects of this *bureau historique* is the compilation of a work to be entitled the "Government of Paris and the History of the Prévôté des Marchands," or trade corporation. An introductory volume has been printed, if not published, containing the plans of the work, by Baron Haussmann, and a note from the Emperor felicitating the prefect on his project of producing a general history of Paris.

THE PLAGUE OF LOCUSTS IN ALGERIA.

All the accounts of the serious character of the recent visitation of Algeria by locusts, are confirmed and even strengthened by a circular addressed by Marshal Can-

robert. It appears that the creatures first appeared during the month of April; coming from the gorges of the mountains, and the fertile valleys of the littoral, they descended first on the plain of the Mitidja and the Sahel of Algiers. Their mass, at certain points, intercepted the light of the sun, and produced an effect similar to that of the snow storms which, in the winter season, fall in Europe, and blot out even the nearest objects from the sight. The vegetation of the country offered an attractive bait to the destructive insects. A large portion of the colza, oat, late barley, and vegetable crops were immediately destroyed, and in some parts even the interiors of houses were invaded.

The Marshal used all his endeavours in encouraging the population in their efforts against the invaders; by his orders the troops were called out to help the colonists to combat the plague, and the Arabs, whose interests were also at stake, joined their efforts against the common enemy. In a few days enormous quantities of the insects were destroyed; but human efforts had little effect against these winged multitudes, which fled over the country, and only abandoned one field to fall upon another. It was impossible to prevent fecundation and the deposit of eggs, which quickly gave life to larvae innumerable, so that the first swarms were soon replaced and centupled by new generations.

The appearance of these young locusts is especially to be dreaded, on account of their voracity; the hungry myriads fell upon everything which had escaped the depredations of their predecessors. They filled up the water-courses, the canals, and the riviulets, and the troops had the greatest difficulty in preserving the water from infection.

Almost at the same time the provinces of Oran and Constantine were invaded. At Tlemcen, where no locusts had appeared within the memory of the oldest inhabitants, the soil was covered with them. At Sidi-bel-Abbès, at Sidi-Brahim, and at Mostaganem they attacked not only the tobacco plantations, the vines, and the fig trees, but also the olive trees, notwithstanding the bitterness of the leaves of the latter. At Relizab and at Harba they invaded the cotton-grounds. The road between Mostaganem and Mascara was literally covered with them along its entire course of fifty miles.

In the province of Constantine the locusts appeared simultaneously from the Sahara to the sea, and from Bougie to Calle. At Batna, at Selif, at Constantine, at Gelma, at Boue, at Philippeville, and at Djidjelly, the people acted energetically against the invasion, but neither fire nor other obstacles offered to the progress of the insects were sufficient to prevent the destruction, which fell principally upon the European settlements.

The damage done is immense, though it is impossible at present to ascertain the exact extent of the mischief, for the work of devastation is going on daily. All that can be done is to assist the unfortunate people whose crops are destroyed, and to furnish bread to the starving families.

This account calls forcibly to mind that of the same kind of plague as recorded in the Bible; such a terrible visitation has not been known in modern times. The Marshal, with the aid of the Archbishop of Paris, the Minister of War, and other official personages, has opened a subscription for the sufferers, and the Emperor, the Empress, and the Prince Imperial, have headed the lists with liberal contributions.

THE TELEGRAPHIC SYSTEM.

On the first day in the present year great reductions were made in the telegraphic tariff between various states of the continent, and the *Journal des Débats* has seized the occasion to show how wide-spread

the system has become, and what means of communication now exist in Europe and between that and other parts of the world. It appears that on the 1st of January there existed nearly seven thousand telegraphic offices in Europe. Two lines connected Europe and Africa, one going from Marsala, in Sicily, to Biserta, in Tunis, and being in connection through the lines in the latter country with Algeria; the other line extends from Malta to Bengazhi, in Tripoli, and is then continued to Alexandria, in Egypt, by a cable which runs along the coast. This second line was intended to make part of the great one to India, but the difficulty of preserving a cable on the coral reefs of the Arabian gulf made it necessary to seek another course; its use is therefore limited to communication between Europe and Egypt. The last-named country is also connected with Europe, as well as with Asia, by a line which traverses Syria, touching at Jerusalem, Aleppo, Tripoli, Beyrout, crossing the Bosphorus, and joining the lines of Turkey, in Europe.

Dispatches for India may be sent by two routes. The first is by means of the Italian lines, the cable which connects Otranto and Vallona, and the lines of Turkey, in Europe and Asia, and reaching to Bassora on the Persian Gulf, it then passes by means of cable submerged along the coasts of that gulf and of the gulf of Oman, and is connected with Indian lines at Kurrachee. The second route is by way of Russia, the Caucasus, and Persia, to Bassora. The Indian telegraphs possess one hundred and sixty-one stations, and the island of Ceylon four.

Dispatches for China are now sent by way of Russia, and are transmitted through the lines of Russia proper and Siberia to the Tartar frontier town of Kiachta. From this point they are carried by the Chinese post to Pekin, a journey which occupies fifteen days.

America is not yet brought into telegraphic relations with Europe, but Russia and America are conjointly at work in establishing a line by way of Siberia and Behring's Straits. The third attempt to lay the great transatlantic cable, as is well known, is now occupying the attention of the whole world; and another line, long projected, that of M. Balcettrini, is expected to be carried out shortly, through the co-operation of several continental states with the United States Government, or an American company.

THE SUPPLY OF CHEAP SUMMER DRINKS.

The system of what is called "Trink-Halles" has been imported from Germany into Paris, by Captain Fontrobert, with the permission of the municipal authorities. The first trink-halle was set up in Leipzig about ten years since, and the success of the system has been immense. Dresden, Vienna, Berlin, Königsberg, Cologne, Hamburg, and other places, have followed the example of Leipzig.

A society was formed last year in Paris for the introduction of trink-halles in France, with a capital of \$6,000, the president of the society being the Baron de Gablenz, brother of the general who commands one of the corps of the Austrian army. The municipal authorities of Paris gave permission for the establishment of ten of these trink-halles by way of experiment, and these were set up in the ancient outer Boulevards and in the Boulevard Sebastopol. This year permission has been accorded for nineteen others, of which twelve are now open to the public, so that at the present moment there are twenty-two in operation. The structure consists of a covered stall, constructed somewhat after the Chalet style, of wood, about ten feet in length and four or five feet deep, and open in front at the upper part, in fact a covered *buvette*, or drinking counter.

Only three kinds of drinks are allowed to be sold at these trink-halles—eau de Seltz pure, and the same with currant syrup or with syrup of Seville oranges;

these drinks are charged, respectively, two and three sous a glass.

The eau de Seltz is made by the society itself, and confined (like the soda-water, ginger-beer, and lemonade, in English shops) in copper cylinders, coated inside with tin, and these are carried round in carts several times a day to the trink-halles, which are provided with fountains and reservoirs of ice, through which the aerated water is made to pass by means of coiled pipes, thirty feet long, so that the water is always well iced. The pressure in the cylinder is that of ten atmospheres. The syrups are kept in closed porcelain vessels, which are furnished with ingenious taps that give to each glass a fixed quantity of the syrup.

Each trink-halle is attended by two women, who wear simple uniform dresses; they receive two francs and a half a day (equal to two shillings), and have in addition the value of five glasses of the beverages allowed them daily. Trink-halles are furnished with tell-tale counters, which enable the inspectors to see how many glasses of the liquid have been sold during the day. The sale is said to amount, in warm days, to ten and twelve thousand glasses between the twenty-two trink-halles, or, on an average, 500 each, but on dull or cold days the demand is almost *nil*.

Under the present arrangements the trink-halles remain closed during the winter months, but it is said to be in contemplation to allow them to sell hot coffee and tea during cold weather. There is no doubt that—whether during summer heat or wintry blasts,—the trink-halle must prove a friend to temperance, and, consequently, a friend of the poor man.

Fine Arts.

THE "DAVID" OF MICHAEL ANGELO.—A bronze casting of this famous statue was made not long since, and it is now proposed to substitute the cast for the original, and to place the latter in the Palace of the Podesta, where it would be better protected from the ravages of time, than in the open space in which it now stands in the city of Florence. A commission has been appointed to carry out the proposal, and the original statue has been inclosed within wood-work, that experiments may be made in order to ascertain, beyond doubt, whether the removal can be made without chance of injury to the statue.

ARCHITECTURAL COMPETITION.—The Architectural Society of Lyons announces a public competition, open to all nations, for a medical college to be erected on the Quay du Prince Impérial in that city. The ground to be occupied does not exceed 6,000 square metres; the plans are to consist of one of the ground floor, and one of the upper story, to a scale of five in a thousand, and of an elevation to a scale of one in a hundred. The conditions are to be had on application to the Secretary of the Society, at the Palais des Beaux Arts, Lyons.

Manufactures.

SOUTH CAROLINA INDUSTRY.—There are some cotton mills in various parts of the State which manufacture coarse cotton fabrics. They are the:—

Graniteville mill	....	working	10,000	spindles.
Vauchuse mill	.....	"	1,200	"
Batesville mill	.....	"	1,400	"
Lester's mill	.....	"	800	"
Bevinsville mill	.....	"	1,000	"
Grady's mill	.....	"	1,000	"

Total 15,400 spindles.

There are two paper mills, which are engaged in the

manufacture of printing and wrapping paper, viz., one at Bath, producing 3,500lbs. daily, and one at Grenville, 1,500lb. There are also the following iron-works:—The Magnetic Iron Works, at Cherokee Ford on Broad River, in Union district, employing about 300 labourers; the King's Mountain Iron Works, in New York district, at the junction of King's Creek and Broad River; and Bobo's Iron Works, Hurricane Shoals, Pacolet River, in Spartanburgh district. All of these works produce pig-iron castings, rolled bar iron, and nails. The quality of the iron is said to be equal to Swedish, but the quantities obtained have not been ascertained. In Picken's district, South Carolina, the Cherokee Mining Company, with a capital of 150,000 dollars, had, shortly previous to the war, established works for the smelting of gold, copper, and lead, all of which are found in that district in great abundance. About a hundred persons were employed, but being taken into military service by the operation of the Confederate Conscription law, the operations of the company then ceased. All of the land in Picken's district is said to be in a high degree metalliferous, and it can be readily purchased at about five dollars per acre.

Commerce.

CONSUMPTION OF TEA AND SUGAR.—The Board of Trade returns (say Messrs. Travers) show a remarkable increase in the quantity of tea entered for home consumption during the five months ending May 31st, as contrasted with the corresponding period of the year 1865; the amount for the present year being 41,608,254 lbs., against 29,643,122 lbs. in 1865, an increase of nearly 12,000,000 lbs.; this does not, however, represent a corresponding increase in actual consumption, as the clearances during the month of May, 1865, were almost nominal in consequence of the reduction of the duty to 6d. per lb., which was announced in April, having been postponed till the 1st of June of that year. As compared with the corresponding five months in 1864 it is not so considerable, being little more than four millions in excess, and this probably represents fairly enough the increase that has resulted from the reduction. Since 1864 there has been a slight but gradual decrease in our exports, which are, in round numbers, represented by 13,000,000, 11,000,000, 10,000,000 lbs., during the five months of the years 1864, 1865, 1866 respectively. A somewhat similar decrease is apparent in our imports, which may be taken as 58,000,000, 57,000,000, and 56,000,000 lbs., during the first five months of the years 1864, 1865, 1866. With regard to sugar, it appears by the same returns that the increase in the imports for the five months ended 31st May last, as compared with the corresponding period of 1865, consists chiefly of the finer qualities. This is so far satisfactory as indicating that the alteration in the duties made two years ago was a step in the right direction, besides being a proof of the injurious influence the scale exercised on the quality of our imports; but the difference between the past and present state of things is purely one of detail, and the principle stands condemned notwithstanding that its evil effects have, to a certain extent, been mitigated. The decrease in exports of raw sugar is extremely large, the figures being, for the present year, 7,566 tons against 14,479 tons for the corresponding period of 1865; and the decrease in the deliveries for home consumption is even larger, the figures being 199,116 tons against 208,850 tons. As regards the stock of raw sugar in the United Kingdom, on the 31st of May last, a large increase is shown for every quality, with the exception of No. 1, or that equal to white clayed, which shows a small decrease as compared with 1865. The total increase for the present year in the stock amounts to 36,043 tons.

THE SPONGE FISHERY OF RHODES.—The total number of boats employed in this fishery last year was 618, of which 35 fished at Bengazi, 156 at Mandruha, three at Syria, 157 at Caramania, 25 at Cyprus, 71 at Crete, the same number in the Ottoman Archipelago, and 100 off Greece. The total value of the take was 13,890,000 piastres. The boats were visited with unusual casualties, eleven were wrecked on the coast of Barbary during a gale of wind on the 28th August. About one-third more boats than usual went to Mandruha, where the fishing was plentiful. With the exception of three Symi boats, no other sponge fishing craft belonging to those islands remained on the coast of Syria, in consequence of a new tax of 18 per cent. custom dues and tithe, lately established on sponges fished in that locality. The boats which had sailed there proceeded to Caramania, which circumstance increased about one-third the number of those which originally intended to fish on that coast. Common and coarse sponges being principally imported to France, several sponge merchants of that country send annually agents to make their purchases direct from the divers, while not a single British merchant has as yet followed the same course for the purchase of fine sponges, which are chiefly forwarded to Great Britain. The higher prices paid by French merchants in consequence of competition are not only amply compensated by the difference between these prices and those of second-hand purchases, but, being themselves on the spot, they can make a choice of the qualities best suited for their markets, thus deriving more profits thereby. The average prices per oke (2½lb.) ranged for fine sponges from 28s. 4d. to £2 15s., for common from 10s. to 26s. 8d., and for coarse from 4s. 2d. to 11s. 8d.

ENGLISH TRADE WITH DENMARK.—The following is from Mr. Petre's consular report:—One of the natural consequences of the separation of the duchies from Denmark has been to divert the export trade in cattle and agricultural produce from its ancient channels, and to create an active direct export trade from the Jutland ports, Aarhus and Aalborg, and at the same time to increase that branch of trade from Copenhagen, to Leith, Newcastle, Hull, and London. For the first time, direct and regular steam communication has been established between the ports of Jutland and Great Britain. Owing to the prolonged severity of the winter of 1864-65, the summer had set in before the steamers employed in this trade began to ply, but even this short experience augurs well for the future importance of this natural outlet for the rich agricultural and animal produce of Jutland and Fünen. Previous to the late war it was a common practice of the Jutland farmers to send their cattle, destined for exportation, to fatten in the duchies, and nearly the whole of the cattle exported to Great Britain were shipped at Tönning or at Hamburg. The Danish Government learnt with considerable satisfaction, from the British returns of imports and exports during the first three quarters of 1865, published by the Board of Trade, that the value of the Danish exports to Great Britain, during the nine months in question, not only exceeded the value of those exports for the corresponding period of 1864 by £382,486 sterling (an increase which the war might reasonably account for), but even exceeded by some few thousand pounds, the united value of the exports from the kingdom and the duchies together in 1863. These figures show conclusively, at all events as far as Great Britain is concerned, that Denmark has not suffered in the value of her export trade by the loss of the duchies. The ravages of the cattle plague in England and Scotland, from which Denmark has hitherto been spared, have doubtless given an exceptional impetus and value to her cattle trade. Scotland absorbs the greater part of the Danish exports to Great Britain. Taking the most important items, such as butter, bacon, flour, dried fish, and oil-cake, the exports to Leith were in the aggregate three times greater than the whole of the exports to the three

English ports above-named. Of the 39,617 head of cattle, including sheep and pigs, exported, 26,754 went to Leith. With the exception of bran, wool, and alum, the returns show a considerable increase in all the exports as compared with the previous year, but the most notable increase was in the exports of butter and bacon; nearly 6,000,000 lbs. of the former, valued at £330,000 sterling, were sent to Great Britain in 1865, as against 4,000,000 lbs. in 1863, and of bacon and hams, 3,500,000 lbs., as against 1,500,000 lbs. There was an increase, too, of 500,000 lbs. of oil-cake over 1864, which is a considerable article of exportation, and goes chiefly to Leith. The number of cattle, sheep, and pigs, exported from Denmark to England and Scotland in 1864 was only 206; in 1865, as already stated, 39,617 were exported. The almost total cessation of the exportation of cattle in 1864 is assignable, of course, to the war. Three-fourths of the cattle exported to Great Britain went from Jutland, the great cattle-breeding province of the kingdom; whereas, nearly two-thirds of the sheep and pigs were exported from Copenhagen. In conclusion, it may fairly be said that a country of the now narrowed dimensions and reduced population of Denmark, which can send in one year to the British markets the amount of produce mentioned above, although it has suffered cruelly in many respects by the late war, is a country which still possesses the essential elements of vitality and of future material prosperity.

Colonies.

TRAMWAYS AT SYDNEY.—A select committee, appointed by the colonial parliament to inquire into the tramway in Pitt-street, Sydney, completed their inquiry shortly before the end of last session, and it appears to be proved that the tramway is of no practical use as a means of increasing the traffic of the Government railways. At no time since its construction has it been used for the removal of country produce of any kind, or merchandize, for the interior, nor does it appear to be regarded as a great convenience to the general body of railway passengers, though it is held in value on this account by the suburban residents on the line, who daily come into the city to attend to business. The rails, as at present laid down, are objected to as dangerous to ordinary carriages crossing over them. It is admitted, on the other hand, that the tramway has been of much service to the Government in removing railway stock from the wharf and the railway station. The committee have stated that the rails will be finally taken up at the end of the present year.

REVENUE OF NEW SOUTH WALES.—A statement of the consolidated revenue of this colony and of the special funds paid into the treasury at Sydney during the quarter ending 31st March, 1865, and the 31st March, 1866, respectively, shows that the total revenue proper for the quarter ending 31st March, 1866, amounted to £462,397 14s. 9d., against £333,216 16s. 8d., for the same quarter of 1865, showing an increase of £129,180 19s. 1d. The heads of revenue showing an increase are:—Customs, about £60,000; land revenue, £51,000; postage, £3,911; commission on money orders, £325; fees of office, £329; stamps, £17,751; railway receipts, £1,003; telegraph receipts, £1,144; harbour dues, &c., £562; tonnage dues, £222. Those showing a decrease are duty on refined sugar and molasses, £2,353; spirits distilled in the colony, £3,518; gold, £1,440; mint receipts, £1,499; licenses, £1,257; fines, £111. In the customs revenue there is a decrease in the amount on duties collected on spirits, wine, tobacco, tea, sugar and molasses, and coffee and chicory, of £19,571, but there is an increase in ale, beer, and opium £2,054. The Murray River customs increase the customs revenue by £15,871, and

the *ad valorem* and package duty by about £60,000. The new duty on hops, malt, rice, and dried fruits amounted to £2,508, and this makes the total increase £79,449, so that without these new taxes the customs would have shown a falling off of £17,500.

Publications Issued.

The **MUSICAL STANDARD** comes out this month as a weekly paper. It is believed that the subject of musical education, to which the attention of the committee appointed by the Council of the Society of Arts has been so long devoted, will frequently be treated in its columns.

Forthcoming Publications.

ILLUSTRATIONS OF THE MEDIAEVAL ANTIQUITIES IN THE COUNTY OF DURHAM, by J. Taverer Perry, M.I.B.A., and Charles Henman, jun., architects, will shortly be published, on toned paper, super royal folio. It is proposed that this work shall contain a series of examples selected from the unrestored buildings of the county, measured and drawn to scale, and interspersed with such sketches as may be necessary to illustrate the subject. It is stated in the prospectus that all the drawings were prepared during the spring and summer of 1865, previous to the last congress of the British Archaeological Association held in Durham. The plans, &c., of Finchale Priory were prepared for, and recently gained, the medal of the Royal Institute of British Architects; while the others were the result of a tour made by the first Pugin travelling student for the purpose of studying remains of mediæval art. The drawings will include specimens from the Cathedral and Castle, hitherto unpublished in this manner; portions of the churches of Auckland, Chester-le-street, Bolton, Ryton, Medomsley, &c., and complete illustrations of the Priory of S. Godrick Finchale, and S. Hilda, Hartlepool. There will be in all about fifty plates, accompanied by a short explanatory text. These will be issued to subscribers at the rate of £1 1s. a copy; or on large and superior paper, £1 11s. 6d. Only 250 copies will be published, after which the stones will be destroyed. Intending subscribers should apply to the authors, at 9, John-street, Adelphi.

Notes.

THE CENTRAL COTTAGE IMPROVEMENT SOCIETY.—The Council of the Central Cottage Improvement Society, whose exhibition of plans at the Society of Arts is attracting attention, have awarded the prizes for the best designs. The successful competitors were—First, Mr. J. F. Smith, Packington-street, Islington; second, Mr. Gregory Gill, Dukinfield, Cheshire; third, Mr. Habershon, jun., Norwood. Many excellent plans were excluded from the competition on the ground that they partook too much of the villa character; but the exhibition is on the whole excellent, and well worthy of a visit.

COMMUNICATION BETWEEN RAILWAY GUARDS AND PASSENGERS.—A system of electric communication, the invention of Mr. C. B. Walker, F.R.S., telegraphic engineer of the South-Eastern Railway, is now being tried on that line. It may be thus briefly described. In each department of the several carriages is a spring resembling in appearance a bell-pull. The pulling of this by a passenger inside the carriage causes a bell to ring in either of the breaks, and it is thus that an alarm is raised. At the instant the bell is pulled a round sign

springs open on the outside of the carriage, indicating the department in which the signal was given. To prevent false alarms, and in order to ascertain the person who pulled the bell, the pull on being drawn out disconnects itself with the apparatus and remains in the hand of the person who pulled it, it being impossible to replace it without a proper key. It being presumed that this is sufficient communication between passengers and guards, a telegraphic wire gives an equally easy communication between guard and guard and engine-driver. An experimental train with this arrangement is to be run as a mail express train on this line of railway.

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.

- Delivered on 4th July, 1866.*
- Par.
Numb.
201. Bills—Charitable Donations and Bequests (Ireland).
202. „ Public Health (as amended by Select Committee).
315. Finance Accounts—Parts I. to VII. (1865-6).
370. Constabulary (Ireland)—Statement.
- Delivered on 5th July, 1866.*
350. East India (Shan States, &c.)—Letter.
364. Malt and Beer—Return.
393. Civil List Pensions—List.
Public General Acts—Caps. 39 to 48.
- Delivered on 6th July, 1866.*
203. Bill—Writs Registration (Scotland) (as amended by Select Committee).
365. Excise and Customs (Ireland)—Statements.
Victoria (Australia)—Further Correspondence.
- Delivered on 7th July, 1866.*
205. Bills—Thames Navigation (as amended by the Select Committee).
208. „ Revising Barristers' Qualifications.
63. (VII.) Committee of Selection—Ninth Report.
69. (VII.) Railway and Canal bills—Eighth Report.
356. Fire Insurances—Account.
390. Rochdale Vicarage Bill—Minutes of Evidence.
- Delivered on 9th July, 1866.*
359. Peace Preservation (Ireland) Act—Return.
378. Anchors—Return.
382. Cattle Diseases Prevention Act (1866)—Complaint.

Patents.

From Commissioners of Patents' Journal, July 6th.

GRANTS OF PROVISIONAL PROTECTION.

- Ammoniacal liquor—1615—G. D. Malam.
Anchors—1624—A. H. Linnington.
Animal charcoal, treating—1640—W. B. Patrick.
Animals, shearing—1645—A. D. Renshaw.
Animal substances, preserving—1707—H. Medlock and W. Bailey.
Bedsteads—1661—B. Browne.
Bricks—1712—W. H. Fyfe.
Candles—1626—L. A. de Milly.
Canisters—1684—W. Welbourn.
Carriages—1529—C. Brautigam.
Carriage wheels, preventing the accumulation of dirt on—1716—H. W. Hart.
Cast steel—1625—V. Gallet.
Churning—1614—E. Morris.
Combustible substances, burning—1594—T. J. Leigh.
Compound lenses—1641—J. H. Dallmeyer.
Conduits—814—A. A. Croll.
Dress, fastenings for articles of—1690—J., S.A., G.E., & F.F. Reading.
Excavating—1701—J. Milroy.
Excavating, scoops for—1483—W. Clark.
Fastenings—1500—C. Nurse.
Fibrous substances, combining—1708—J. Northend, J. Holmes, W. Hopkinson, and W. Bibby.
Fibrous substances, spinning, &c.—1687—E. G. Fitton.
Fire-arms, breech-loading—1622—W. E. Newton.
Fire-arms, breech-loading—1691—T. P. Saville.
Fluid compasses—1627—W. R. Hammersley.
Fluids, distilling volatile products from—1710—W. R. Lake.
Furnaces—1232—J. Thomas and A. Prince.
Grain, decorticating—1586—H. A. Dufrené.
Graining, tools for—1643—T. Chaloner and J. Billington.
Hoists—1618—W. Bellhouse.
Hydro-carbon oils, treating—1697—J. Young, jun.
Life boats—1659—W. Forgie and J. Thornton.

- Liquid cargoes, ships used in conveying—1705—C. Beeching.
Liquids, registering the flow of—1696—A. Clayton.
Liquors, packing and transporting—1678—H. Gardner.
Locks—1635—A. Macdonald.
Locks or fastenings—1688—C. E. Brooman.
Materials, fixing colouring matters on—1642—A. Paraf.
Metal, cutting, &c.—1677—T. Dunn.
Metallic packing—1668—C. A. Dufour.
Metals, moulds for casting—1631—A. Lees and J. B. Slater.
Motive-power apparatus—1666—J. Parker.
Motive power, producing—1714—J. Jordan.
Nets—1619—J. B. Payne.
Nets—1634—W. M. Ward.
Permanent indammable gases, treating—1628—B. F. Stevens.
Pigments—1639—J. E. T. Woods.
Pipes—1698—C. F. Cotterill.
Pistons and cylinders—1711—T. Kennedy, jun., and J. Barr.
Printing, preparing colouring matter for—1657—J. Moller.
Pulleys—1702—W. E. Gedge.
Pulp—1654—D. A. Fyfe.
Railway carriages, coupling—1686—E. G. Brewer.
Railways—1676—T. Deakin.
Railway signals and switches, working, &c.—1681—H. Hill.
Reaping and mowing machines—1621—J. Whitaker.
Retorts—1600—J. Nicholas.
Rotary and reciprocating engines—1647—T. Blatch.
Rotary engines—1669—G. Furton.
Rotary engines—1674—A. V. Newton.
Safes—1671—E. Peyton.
Salt cellars—1655—E. Bourdier.
Screw nuts and bolts—1644—F. B. Lucas.
Sewing machines—1653—A. Bourn.
Spirit meters—1692—W. E. Newton.
Steam boilers, preventing incrustation in—1720—B. F. Weatherdon.
Steam gauges—1675—G. Davies.
Steam, generating—1694—E. Field and F. Wise.
Steam, generating—1709—W. Fairbank.
Substances, screening—1719—W. Wyatt.
Sugar—1623—W. Knaggs.
Surfaces, paving—1663—C. P. Henry.
Thermo-electric magnetic batteries and engines—1718—J. Baker.
Tobacco, finishing—1713—R. H. Clydesdale and J. E. Wilson.
Trimnings—1664—W. Smith.
Tubes, fittings for—1636—G. H. M. Muntz.
Vermin traps—1632—G. R. Wilson.
Vessels, propelling—1497—R. B. Boyman.
Vessels, propelling—1509—G. P. Evelyn.
Voltaic piles—1637—G. L. Leclanche.
Watches, exhibiting the time on dials of—1679—P. Barlow.
Weaving, looms for—1613—J. J. and E. Harrison.
Weaving, looms for—1685—E. Hemingway.
Weights, raising—1672—W. and W. T. Eades.
White lead—1703—W. R. Lake.
Windows, &c., securing—1616—J. Carter.
Wood screws—1689—C. E. Brooman.
Woven fabrics, printing on—1704—St. C. Raddison.

INVENTIONS WITH COMPLETE SPECIFICATIONS FILED.

- Metal boxes, tins, or cases—1722—W. E. Gedge.
Safety locks—1750—H. A. Bonneville.
Submarine telegraph cables—1749—H. A. Bonneville.
Subterranean telegraph wires—1751—H. A. Bonneville.

From Commissioners of Patents' Journal, July 10th.

PATENTS SEALED.

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| 63. T. Bradford. | 106. P. L. Charon. |
| 78. J. Ireland and S. Davies. | 108. J. M. Napier. |
| 82. J. Clutton. | 109. R. T. Sutton. |
| 84. A. S. Brooman. | 111. W. Comery and H. Webster. |
| 85. A. S. Brooman. | 112. H. A. Dufrené. |
| 90. H. Dean. | 118. W. Gadd and J. Moore. |
| 92. T. A. Blakely & J. Vavasour. | 121. B. Todd. |
| 93. J. C. Angus and G. Stuart. | 123. H. Gottheimer. |
| 95. R. Mathers. | 139. C. Moriarty. |
| 97. C. Crump. | 171. F. Cole. |
| 100. F. J. King. | 197. S. F. Allen. |
| 104. A. H. Hart. | 888. S. Barbour. |
| 105. W. B. Woodbury & G. Davies. | 953. E. C. Prentice. |

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

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| 1646. R. A. Brooman. | 1681. C. Schiele. |
| 1720. A. R. Johnston. | 1692. G. Haseltine. |
| 1693. W. Basford. | 1709. R. A. Brooman. |
| 1687. W. E. Gedge. | 1728. W. Henderson. |
| 1726. R. Hornsby, jun., J. Bon- | 1782. H. Elliott. |
| nall, and W. Astbury. | |
| 1761. R. Hornsby, jun., and J. E. Phillips. | |

PATENTS ON WHICH THE STAMP DUTY OF £100 HAS BEEN PAID.

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| 1630. H. Brinsmead & J. Lawrence. | 1627. D. Mathews. |
| 1629. W. H. Harfield. | 1631. J. Taylor. |
| 1726. W. H. Harfield. | 1654. T. Wright. |